

Plant Evaluation Notes

A Performance Report of Cultivated Yarrows (*Achillea*)

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When selecting perennials for the garden, yarrow will likely be on your list. From the white flowers of the ubiquitous common yarrow (*Achillea millefolium*) to the clear yellows and oranges of the hybrids, the sun-loving yarrow are a popular component of the summer garden. Achillea is a member of the Sunflower family (Asteraceae), with approximately 100 species native to the temperate zones, mostly of the Old World. The common yarrow of roadsides and fields has been enhanced through hybridization, resulting in the introduction of superior selections.

Yarrow is suitable as a specimen plant or for massing in perennial beds, mixed borders, rock gardens, wildflower gardens or naturalized areas. It can even be used as a turf grass alternative (Connelly 1991). The long-lasting flowers of *Achillea* also make it a good choice for cutting and drying. The range of flower colors and habits create varied effects when combined with other perennials. The aromatic foliage is often fern-like and may be green, gray or silver-green.

Preferring full sun and a well-drained soil, yarrow will tolerate a drier site once established (Clausen and Ekstrom, 1989).

In 1986, the Galaxy hybrids, a group of cultivars with clear, distinctive flower colors, were introduced from Germany. The original hybrid between *Achillea millefolium* and *A. × taygetea* resulted in the cultivars 'Hoffnung', 'The Beacon', 'Salmon Beauty' and 'Appleblossom' (Thomas 1990). Since then, other cultivars with improved habits and a broader range of flower colors have joined the original Galaxy hybrids in the market place.

Many of these cultivars are now available in the Midwest. With so many yarrow to choose from, which are the best for the Chicago area?

Evaluation Project

A four-year evaluation project featuring Achillea ran from 1989 to 1993. The project was part of the Target Genera Series, a Chicago Botanic Garden program that compares commercially available species and cultivars of a particular genus. Genera selected for this program

are horticulturally significant in the Midwest, exhibit favorable ornamental characteristics and are easily cultivated.

Three goals were established for the *Achillea* project: 1) to compare the ornamental characteristics of available taxa; 2) to determine cultural parameters for successful cultivation in the Chicago area; and 3) to ascertain the similarity of named cultivars. Identifying superior species and cultivars for the Midwest was the overall purpose of the project.

Forty-two taxa of *Achillea* were included in the trials (Table 1). One additional cultivar, 'Heide', was eliminated from the trial after the second season because it did not correctly match the published description; this cultivar was not replaced. All plants were obtained from commercial sources except *Achillea sibirica* var. *camtschatica*, donated by The Holden Arboretum, Mentor, Ohio.

The yarrow trial was located in the Herbaceous Test Garden, which provides a uniform site for the testing of herbaceous perennials. All trial plots received similar exposure to wind and approximately 8-10 hours of sun per day during the growing season. Planting beds were excavated to a depth of 30.5 cm (12 in.) and raised 15.2 cm (6 in.) above ground level to improve drainage. The soil mix ratio was one part composted leaves to four parts soil. A soil pH of 7.6 was recorded during the evaluation period. Trial plots of 15 plants each were bounded on two sides by turf grass paths and separated by mulched strips.

Maintenance practices were kept to a minimum to simulate home garden culture. The test plants received adequate



Achillea 'Salmon Beauty'



Achillea 'Peach Blossom'

moisture because the surrounding turf grass was regularly irrigated. Irrigation was supplemented only when necessary. The plants were fertilized annually in May with a slow-release granular product (Woodace® 12-5-9) at the rate of one pound per 100 square feet. A mulch of shredded leaves and wood chips was maintained throughout the year for aesthetics and water conservation. Plants were cut back each autumn and top-dressed with 5-7.6 cm (2-3 in.) of mulch for the winter.

Evaluation Report

Data was collected on: flower color, size and floral effect; bloom season; plant height and habit; stem character; foliage type and color; disease/pest resistance; and hardiness. Specific information on each taxon is noted in Table 1. Widths were not routinely recorded due to the vigorous spreading nature of the plants. A summary rating was assigned to each taxon based on its overall performance throughout the four year evaluation term. For example, a four-star rating signifies superior performance, whereas a one-star rating denotes poor performance.

Although flower color is a significant attribute, the specific color was not weighted heavily in the final rating, but rather observed for effectiveness through the entire bloom period. Colors faded as the flowers aged and often several color gradations were observed at any time during the bloom period. The Royal Horticultural Society's R.H.S. Colour Chart designation in Table 1 refers to the predominant color.

Peak bloom period was typically one month after the first flowers. Bloom periods in 1991 were on average one month earlier than other years due to warmer weather in early May. A few cultivars exhibited remontant, or repeat bloom later in the season (Table 1). The criteria for designating remontant bloom status was a distinct two-week period without flowers, before flowering resumed.

In certain instances flower color, bloom period and general habit were similar on differently named cultivars. These groups were: 'Salmon Beauty' and 'Weser River Sandstone'; 'Lilac Beauty' and 'Sawa Sawa'; 'Debutante' and 'Summer Pastels'; and 'Fire King', 'Kelwayi', 'Cerise Queen', 'Crimson Beauty' and 'Nakuru'. Plants were either spreading or clump-forming in habit. The spreading plants grew so quickly that width measurements beyond the first season were impossible to determine. All plants were placed 46-61 cm (18-24 in.) apart, and by the second season all inter-planting space was filled. Stem character in spreading plants varied from totally erect to fully decumbent. Flopping was evident each year but particularly severe in 1991. All clump forms remained relatively upright each summer and usually exhibited only slight flopping late in the season. Flopping was most severe in plants rated fair to poor.

Some cultivars flopped so completely that total removal of fallen stems was necessary, often resulting in an unsightly patch of brown stems and foliage fragments. Removal of stems did not measurably contribute to the regeneration of leaves. In most cases, regeneration had already begun so that cutting back fallen stems was merely a sanitation measure. New foliage was evident 11 to 23 days after the removal of stems. Spent blossoms were also removed from one half of each plot to measure the effects of deadheading. Although 'Citronella' and 'Jambo' showed increased flowering from this maintenance practice, repeat bloom was not generally accelerated by deadheading.

Cold hardiness was not a limiting factor in the test group, except for *Achillea ageratum* (USDA zone 7, Huxley 1992). Approximately one half of the test plot of *Achillea ageratum* was killed during the first winter and all but one plant died in subsequent winters. The poor performance of *Achillea × kolbiana*, *A. ×*

lewisii and *A. tomentosa*, was probably due to excessive moisture in the test site, rather than winter hardiness - although *Achillea × kolbiana* is listed for Zone 6 (Jelitto and Schacht, 1990).

Powdery mildew and a fungal infection of the flower buds were the only diseases observed. *Achillea ageratum* and all cultivars of *A. ptarmica* were infected by powdery mildew. Mildew was unsightly and moderately severe in all years. Mildew was detected on *A. ptarmica* each year in early August, except for 1991 when it was first noted in late June. No chemicals were used to prevent or control the mildew. In 1991, a fungal infection occurred on the buds of *Achillea 'Parker's Yellow'* and the *A. filipendulina* cultivars 'Gold Plate' and 'Parker's Variety'. No infection was noted on the similar cultivar 'Coronation Gold'. The cause was believed to be fecal droppings from goldfinches that perched on the flower buds. Flowers developed normally in most instances, with no serious or long-lasting injury observed.

Taxa with poor plant forms and/or overall inferior ornamental qualities received the lowest summary ratings. 'Summer Pastels' and 'Debutante' are seed-grown varieties with mixed flower colors and variable forms, plant sizes and foliage types. The lack of uniformity in habit and the uncertainty of the actual flower color mix and bloom dates were negative attributes. 'Cerise Queen' and 'Kelwayi' had weedy growth habits and required deadheading immediately as flowers faded, or the spent flowers quickly turned brown. Flower production was excellent for 'Salmon Queen' and 'White Beauty' but both cultivars had floppy, untidy habits.

Conclusions

So what are the best yarrows for the Chicago area? Over half the 42 *Achillea* species and cultivars compared during the evaluation term were rated good to

excellent. Another quarter of the total received fair ratings. Clearly there are many yarrow that can be successfully grown in the local environment.

One yarrow was not winter hardy and others were tested in improper site conditions that may have effected the ultimate quality or performance of the plants. Improperly sited test groups did not receive a fair evaluation and were therefore not rated in Table 1. All plants with a rating designation are adaptable to cultivation in the Chicago area.

The final summary rating reflects the primary characteristics observed during the test period, such as flowers, bloom period, height, habit and adaptability. Floral characteristics such as longevity, coverage and remontant status were primary considerations whereas flower color was secondary. Where fading flowers significantly detracted from the ornamental appeal of the plant, color was considered a primary characteristic.

Yarrow is a popular perennial with a variety of new colors and forms that will continue to add dimension to the landscape. From the many shades of magenta and lavender to the clear pastels of the Galaxy hybrids, yarrow offers a flower color for almost any use. Which yarrow you choose will depend on your garden, color preference and intended use. With the many choices available, certainly no garden has to do without yarrow. \ddagger

References

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Top 10 Plants

Summary ratings are based on overall performance and character traits such as length of bloom, habit (including invasiveness and stem character), disease/pest resistance and ornamental qualities. The following 10 plants received the highest ratings, from very good to excellent. Flower production is based on the percentage of plot covered with blossoms at peak. See Table 1 for more information.

Achillea 'Citronella'

The erect habit was consistent except in 1991. Flower production to 100% at peak and fully effective for one full month during the summer. Butter cream flowers faded to ecru. Fair repeat bloom.

Achillea 'Coronation Gold'

One of the best yarrows. Stems did not flop but relaxed in mid summer. Flower production was 60% to 80% at peak, with no repeat bloom. Inflorescences were large and closely spaced on a plant. Silvery-green foliage; clump, non-spreading habit.

Achillea 'Hoffnung'

Excellent flower production with 90% to 100% coverage. A solid mass of tawny yellow flowers in 1992. Plants were erect and spreading, but with some flopping in 1991. Good repeat bloom later in the season.

Achillea millefolium 'Lilac Beauty'

The best yarrow overall for flower coverage, habit and length of bloom. Lavender flowers faded to light pink or white. Flower production was 100%, with consistent bloom throughout the season. Stems erect or only slightly relaxed by end of season. Remained erect in 1991 when other cultivars flopped.

Achillea millefolium 'Rosea'

Stems of this cultivar remained erect except in 1991. Flower color was similar

to 'Nakuru' and 'Rosy Red'. Large, loose inflorescences were produced from early July into September; repeat bloom was good. A common flower color, but better than other named selections of similar character.

Achillea 'Parker's Yellow'

Similar to 'Coronation Gold' in general appearance. Flower production 60% to 80%, no repeat bloom. Plants remained erect; leaves green. Damage to flower buds by bird droppings in 1991; most severely affected.

Achillea 'Peach Blossom'

Bloomed consistently on the same dates each year. Cut back in mid July and rebloomed until mid August; flower production was not increased by cutting back. Plants remained mostly erect during the summer. The clearest pink yarrow in the test group.

Achillea ptarmica 'The Pearl'

Bloomed about the same dates each year. Flower production was 80% to 100%. *Achillea ptarmica* cultivars had the best white flower color among the yarrows.

Achillea 'Sawa Sawa'

A taller version of 'Lilac Beauty', but with darker flower color upon opening; 100% flower production at peak. Stems stouter than other cultivars, remaining more erect. Few deadheads removed at any one time; longer appearance of full flower effect.

Achillea 'Snow Taler'

Brighter white flowers than 'White Beauty'. Flower production was 100% at peak, with a low percentage of repeat bloom after cutting. Deadheading was not necessary until late in summer. Over two months of good display. Plants remained erect, with only a slight flop.

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Table 1: Characteristics and Performance Summary for *Achillea*, 1989-1993

Rating	<i>Achillea</i>	Flower Color/R.H.S. ¹	Inflorescence Size	Bloom Period ²	Height ³	Habit
NR	<i>ageratum</i>	yellow/2A	3.8 cm (1-1/2 in.)	late Jun-mid Oct	40.6-48.3 cm (16-19 in.)	CE
***	'Appleblossom'	lavender/75A	5.1-12.7 cm (2-5 in.)	late May-early Jul **	43.2-48.3 cm (17-19 in.)	SE/F
***	'Citronella'	pale yellow/12D	7.6-12.7 cm (3-5 in.)	mid Jun-late Sep **	60.6-81.3 cm (27-32 in.)	SE
***	'Coronation Gold'	bright yellow/14B	5.1-7.6 cm (2-3 in.)	mid Jun-late Aug	60.6-91.4 cm (27-36 in.)	CE
***	<i>filipendulina</i> 'Gold Plate'	yellow/14B	10.2-12.7 cm (4-5 in.)	early Jul-early Sep	91.4-111.8 cm (36-44 in.)	CE
***	<i>filipendulina</i> 'Parker's Variety'	yellow/14A	7.6-10.2 cm (3-4 in.)	early Jul-early Sep	86.4-116.8 cm (34-46 in.)	CE
***	'Hoffnung'	tawny yellow/16C	10.2-15.2 cm (4-6 in.)	mid Jun-mid Sep **	71.1-83.8 cm (28-33 in.)	SE
***	'Jambo'	lemon yellow/5C	7.6-15.7 cm (3-6 in.)	mid Jun-mid Sep **	73.6-91.4 cm (29-36 in.)	SF
+ NR	<i>x kolbiana</i>	white	3.8 cm (1-1/2 in.)	late May-mid Jun	12.7-15.2 cm (5-6 in.)	CG
+ NR	<i>x lewisi</i> 'King Edward'	pale yellow	12.7 cm (5 in.)	late May-late Jul	7.6 cm (3 in.)	CG
*	<i>millefolium</i> 'Cerise Queen'	magenta/71C	5.1 cm (2 in.)	early Jun-late Aug	63.5-81.9 cm (25-32 in.)	SF
**	<i>millefolium</i> 'Cherry Queen'	magenta-lavender/74A	10.7-12.7 cm (4-5 in.)	early Jul-early Sep	81.9-91.4 cm (32-36 in.)	SF
**	<i>millefolium</i> 'Crimson Beauty'	deep magenta/61A	7.6-12.7 cm (3-5 in.)	late Jun-Sep	43.2-71.1 cm (17-28 in.)	SF
***	<i>millefolium</i> 'Fire King'	deep magenta/64A	7.6-12.7 cm (3-5 in.)	early Jul-late Aug **	63.5-76.2 cm (25-30 in.)	SF
**	<i>millefolium</i> 'Island Pink'	dull magenta/71B	6.4 cm (2-1/2 in.)	late Jun-late Aug	88.9-96.5 cm (35-38 in.)	SF
*	<i>millefolium</i> 'Kelwayi'	deep magenta/64B	7.6-10.7 cm (3-4 in.)	early Jun-late Sep	50.8-78.7 cm (20-31 in.)	SF
*	<i>millefolium</i> 'Lavender Lady'	pale lavender/75C	7.6-10.7 cm (3-4 in.)	early Jun-late Aug **	61.0-66.0 cm (24-26 in.)	SF
****	<i>millefolium</i> 'Lilac Beauty'	lavender/75B	7.6-12.7 cm (3-5 in.)	mid Jun-late Sep **	63.5-76.2 cm (25-30 in.)	SE
**	<i>millefolium</i> 'Paprika'	rose red/53C	5.1-10.2 cm (2-4 in.)	early Jun-early Oct **	61.0-68.6 cm (24-27 in.)	SF
***	<i>millefolium</i> 'Rosea'	magenta	10.2-15.7 cm (4-6 in.)	early Jul-Sep **	76.2-86.4 cm (30-34 in.)	SE
***	<i>millefolium</i> 'Rosy Red'	magenta/75A/B	2.5-10.2 cm (1-4 in.)	mid Jun-mid Aug	91.4-106.7 cm (36-42 in.)	SF
*	<i>millefolium</i> 'White Beauty'	white/155B	7.6-12.7 cm (3-5 in.)	mid Jun-early Sep	66.0-86.4 cm (26-34 in.)	SF
***	'Moonshine'	bright yellow/1A	7.6-8.9 cm (3-3 1/2 in.)	early Jun-early Sep **	61.0-73.7 cm (24-29 in.)	CE/F
**	'Nakuru'	magenta/71A/C	5.1-7.6 cm (2-3 in.)	mid Jun-late Aug	50.8-76.2 cm (20-30 in.)	SF
**	'Orange Queen'	orange-peach/39A	5.1-10.2 cm (2-4 in.)	mid Jun-late Aug	50.8-68.6 m (20-27 in.)	SF
***	'Parker's Yellow'	yellow	7.6-10.2 cm (3-4 in.)	mid Jul-late Sep	78.7-104.1 cm (31-41 in.)	CE
***	'Peach Blossom'	pink/55B	7.6-12.7 cm (3-5 in.)	mid Jun-late Aug	61.0-76.2 cm (24-30 in.)	SE
***	<i>ptarmica</i> 'Angels Breath'	white/155B	2.5-5.1 cm (1-2 in.)	early Jul-early Sep	61.0-76.2 cm (24-30 in.)	SF
**	<i>ptarmica</i> 'Ballonna'	white/155B	2.5-6.4 cm (1-2 1/2 in.)	mid Jun-late Aug	63.5-73.7 cm (25-29 in.)	SF
***	<i>ptarmica</i> 'Perry's White'	white/155B	2.5-5.1 cm (1-2 in.)	early Jul-late Aug	76.2-81.3 cm (30-32 in.)	SE
***	<i>ptarmica</i> 'The Pearl'	white/155B	2.5-5.1 cm (1-2 in.)	early Jul-mid Sep	81.3-86.4 cm (32-34 in.)	SF
***	'Salmon Beauty'	peach/38A	10.2-12.7 cm (4-5 in.)	late Jun-late Aug **	71.1-83.8 cm (28-33 in.)	SF
*	'Salmon Queen'	peach/37C	5.1-15.2 cm (2-6 in.)	mid Jun-late Aug	55.9-66.0 cm (22-26 in.)	SF
****	'Sawa Sawa'	light magenta	7.6-15.7 cm (3-6 in.)	mid Jun-late Aug	91.4-106.7 cm (36-42 in.)	SE
**	<i>sibirica</i> var. <i>carniolica</i>	pale lavender/75B	5.1-10.2 cm (2-4 in.)	late Jun-late Aug	61.0-86.4 cm (24-34 in.)	SF
*	'Snow Taler'	white/155D	7.6-15.2 cm (3-6 in.)	mid Jun-early Sep	76.2-91.4 cm (30-36 in.)	SE
*	'Summer Pastels'	mixed	5.1-15.7 cm (2-6 in.)	mid Jun-late Aug	61.0-96.5 cm (24-38 in.)	SF
*	<i>x taygetea</i> 'Debutante'	mixed	7.6-12.7 cm (3-5 in.)	mid Jun-late Aug	66.0-76.2 cm (26-30 in.)	SF
**	'The Beacon'	red	7.6-10.2 cm (3-4 in.)	early Jun-late Aug	50.8-71.1 cm (20-28 in.)	SF
**	<i>tomentosa</i> 'Aurea'	bright yellow/9A	2.5-7.6 cm (1-3 in.)	early Jul-mid Sep	20.3 cm (8 in.)	SG
***	<i>tomentosa</i> 'Maynard's Gold'	bright yellow/12A	5.1 cm (2 in.)	mid Jul-early Oct	20.3 cm (8 in.)	SG
***	'Weser River Sandstone'	salmon	12.7-20.3 cm (5-8 in.)	mid Jun-late Aug	71.1-88.9 cm (28-35 in.)	SF

Performance Ratings: **** - Excellent, *** - Good, ** - Fair, * - Poor, NR - Not Rated

Habit Codes: C- Clump, S- Spreading, G- Ground Cover, E- Erect, F- Flopping

¹ R.H.S. Colour Chart designations refer to the predominant flower color, not all the stages of color within a plot.

² Includes remontant bloom period. Main and remontant periods not delineated.

³ Measurement taken when stems were most erect, prior to flopping.

*Summary for 1989-1991 only, died over winter 1991-92.

** Remontant bloom-two distinct bloom periods marked by a separation of at least two weeks without flowers.



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